

## INTERNATIONAL SEARCH REPORT

National Application No

/GB2004/001681

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 F16D1/08 F16C35/02 F16C35/073 F16C35/077

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 F16D F16C G11B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	PATENT ABSTRACTS OF JAPAN vol. 0090, no. 22 (M-354), 30 January 1985 (1985-01-30) -& JP 59 166711 A (TAIHOU KOGYO KK; others: 01), 20 September 1984 (1984-09-20) abstract; figures 3-5	1-4
A		
X	US 4 981 390 A (CRAMER JR ARTHUR A ET AL) 1 January 1991 (1991-01-01) column 2, lines 27-35 column 4, line 60 - column 5, line 9; figure 7	1-7
A		
A	EP 0 554 144 A (NADELLA) 4 August 1993 (1993-08-04) column 4, line 46 - column 5, line 12; figure 3a	1-4,6
	----- -/-	



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

## \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*&\* document member of the same patent family

Date of the actual completion of the international search

16 July 2004

Date of mailing of the international search report

13/09/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

BEGUIN, C

## INTERNATIONAL SEARCH REPORT

ational Application No  
/GB2004/001681

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 18 72 950 U (D.S.K) 30 May 1963 (1963-05-30) page 2, lines 15-20; figures	1-4,6
A	DE 32 48 148 A (DAIMLER BENZ AG ; WITZENMANN METALLSCHLAUCHFAB (DE)) 5 July 1984 (1984-07-05)	
A	US 6 333 839 B1 (JONES INMAN L ET AL) 25 December 2001 (2001-12-25)	
A	US 6 480 363 B1 (PRATER WALTER L) 12 November 2002 (2002-11-12)	
A	US 3 633 398 A (KOCH HANS W) 11 January 1972 (1972-01-11)	

## INTERNATIONAL SEARCH REPORT

Additional Application No

/GB2004/001681

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
JP 59166711	A	20-09-1984	JP 1669834 C JP 3031931 B	12-06-1992 09-05-1991
US 4981390	A	01-01-1991	CA 1279504 C	29-01-1991
EP 0554144	A	04-08-1993	FR 2686951 A1 EP 0554144 A1	06-08-1993 04-08-1993
DE 1872950	U		NONE	
DE 3248148	A	05-07-1984	DE 3248148 A1	05-07-1984
US 6333839	B1	25-12-2001	CN 1402871 T DE 10085247 T0 GB 2373916 A ,B JP 2003518592 T WO 0141136 A1	12-03-2003 07-11-2002 02-10-2002 10-06-2003 07-06-2001
US 6480363	B1	12-11-2002	NONE	
US 3633398	A	11-01-1972	DE 2063266 A1	24-06-1971